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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,848	04/12/2004	Kazuhiko Miyata	0756-7278	2083
31780	7590	11/13/2009	EXAMINER	
ERIC ROBINSON			TRAN, CON P	
PMB 955			ART UNIT	
21010 SOUTHBANK ST.			PAPER NUMBER	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/821,848	<b>Applicant(s)</b> MIYATA ET AL.	
	<b>Examiner</b> CON P. TRAN	<b>Art Unit</b> 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-14, 22-35 and 43-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-10, 12-24, 26-31, 33-49, 51-65 and 67-69 is/are rejected.
- 7) ☐ Claim(s) 11, 25, 32, 50, 58 and 66 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/22/09</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 8-10, 12-24, 26-31, 33-49, 51-65, and 67-69** are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art Background of the Invention, Figures 2, 3, 4, 5 (hereinafter, "APA") in view of Nakagawa, et al. (hereinafter, "Nakagawa") U.S. Patent 5650834, and further in view of Yamazaki, et al. (hereinafter, "Yamazaki") U.S. Patent 6331718.

Regarding **claim 8**, APA teaches an audio signal processing circuit (307, Fig. 3) comprising:

an operational amplifier (402, Fig. 4) and comprising a transistor (MOS transistor [0017]), the operational amplifier (402, Fig. 4) including an input terminal and an output terminal (see Fig. 4);

a first resistor (405, Fig. 4) formed over the insulating substrate (501, Fig.5), a first terminal of the first resistor (405, Fig. 4) being electrically connected to the input terminal of the operational amplifier (inverting input of 402, see Fig. 4), and a second terminal of the first resistor (405, Fig. 4) being electrically connected to the output terminal of the operational amplifier (see Fig. 4);

a second resistor (404, Fig. 4), a first terminal of the second (404, Fig. 4) resistor being electrically connected to the input terminal of the operational amplifier (402, Fig. 4) and the first terminal of the first resistor (405, see Fig. 4); and

a chip capacitor on flexible printed circuit (APA, page 4, lines 9-13); see also a capacitor (407, Fig. 4), the capacitor being electrically connected to the second terminal of the second resistor (404, Fig. 4).

APA does not explicitly disclose the a first thin film resistor formed over the insulating substrate; a second thin film resistor formed over the insulating substrate; and a chip capacitor mounted over a flexible printed circuit connected to the insulating substrate, the chip capacitor being electrically connected to the second terminal of the second thin film resistor.

Nakagawa discloses active-matrix substrate for use in matrix-type display devices such as liquid crystal display devices (col. 1, lines 7-10) including (see Figs. 1, 5A, 5B) thin film transistors arranged in a matrix pattern on the transparent insulative substrate (8, Fig. 5), a plurality of gate lines (11, Fig. 5) each adapted to supply a signal to a gate electrode of each of the thin film transistors (1, Fig. 1), and a thin film resistor (6, Figs. 1, 5) provided intermediate between an input terminal of each of the signal

lines and shortcircuiting ring; capacitor (3, Fig. 1; see col. 4, lines 33-53; col. 6, lines 38-60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the active-matrix substrates taught by Nakagawa with the audio signal processing circuit of APA to obtain the audio signal processing circuit comprising the a first thin film resistor formed over the insulating substrate; a second thin film resistor formed over the insulating substrate; and a chip capacitor mounted over a flexible printed circuit connected to the insulating substrate as claimed since the claimed invention is merely a combination of old elements, and in the combination each element merely would have performed the same function as it did separately. The motivation is for purpose of improvements in production yield and product quality, as suggested by Nakagawa in column 3, lines 24-26.

APA in view Nakagawa of does not explicitly disclose the operational amplifier formed over an insulating substrate and comprising a thin film element.

Yamazaki discloses a group of operational amplifier circuits constituted by thin film transistors formed on an insulating surface (col. 2, lines 1-5; Figs. 1, 2, col. 4, lines 28-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the operational amplifier circuits taught by Yamazaki with the audio signal processing circuit of APA in view of Nakagawa to obtain the audio signal processing circuit comprising the operational amplifier formed over an insulating substrate and comprising a thin film element as claimed, and to

accommodate the prior art audio processing with the thin film processing for purpose of eliminating effects of capacitance of a substrate, as suggested by Yamazaki in column 2, lines 18-19.

Regarding **claim 9**, APA in view of Nakagawa and further in view of Yamazaki teaches the audio signal processing circuit according to claim 8. APA in view of Nakagawa and further in view of Yamazaki, as modified, further teaches wherein the audio signal processing circuit comprises an input circuit (see APA, page 6, line 25 – page 7, line 4) and the input circuit comprises a third thin film resistor (TFT 6, see Nakagawa, Fig. 5; APA, Fig. 4, resistor 403) and the chip capacitor (APA, page 5, lines 12-16; Fig. 4, capacitor 406).

Regarding **claim 10**, APA in view of Nakagawa and further in view of Yamazaki teaches the audio signal processing circuit according to claim 8. APA in view of Nakagawa and further in view of Yamazaki, as modified, further teaches wherein the audio signal processing circuit comprises a feedback circuit and the feedback circuit (feedback of amp. 402, see APA, Fig. 4) comprises the first thin film resistor (TFT 6, see Nakagawa, Fig. 5; APA, Fig. 4, resistor 405), the second thin film resistor (APA, Fig. 4, resistor 404) and the chip capacitor (APA, page 5, lines 13-16).

Regarding **claim 12**, APA in view of Nakagawa and further in view of Yamazaki teaches the audio signal processing circuit according to claim 8. APA in view of

Nakagawa and further in view of Yamazaki, as modified, further teaches wherein P-type impurities are doped in the first thin film resistor and the second thin film resistor (contact holes 34, 35, see Nakagawa, Figs. 5a, 5b; col. 9, lines 5-10).

Regarding **claim 13**, APA in view of Nakagawa and further in view of Yamazaki teaches the audio signal processing circuit according to claim 8. APA in view of Nakagawa and further in view of Yamazaki, as modified, further teaches wherein the first thin film resistor and the second thin film resistor have a resistance value of 80 k $\Omega$  or more (APA, page 5, lines 19-21).

Regarding **claim 14**, APA in view of Nakagawa and further in view of Yamazaki teaches the audio signal processing circuit according to claim 8. APA in view of Nakagawa and further in view of Yamazaki, as modified, further teaches wherein the electronic equipment is one selected from the group consisting of a video camera, a digital camera, a head mounted display, a game machine, a car navigation system, a personal computer and a portable information terminal (APA, page 1, line 13 – page 2 line 4; Nakagawa, col. 1, lines 17-29).

Regarding **claim 43**, APA in view of Nakagawa and further in view of Yamazaki teaches the audio signal processing circuit according to claim 8. APA in view of Nakagawa and further in view of Yamazaki, as modified, further teaches wherein the audio signal processing circuit comprises an input circuit (see APA, page 6, line 25 –

page 7, line 4) and the input circuit comprises the second thin film resistor (404, Fig. 4, see APA; 6, Figs. 1, 5, see Nakagawa) and the chip capacitor (APA, page 4, lines 9-13), see also a capacitor (407, Fig. 4, see APA).

Regarding **claim 22**, this claim has similar limitations as Claim 8. Therefore it is interpreted and rejected under APA in view of Nakagawa and further in view of Yamazaki of for the reasons set forth in the rejection of Claim 8. It is noted the APA further discloses in Fig. 3B the display device has a substrate (309) on which a pixel portion (304, see Fig. 3A, Specification page 3, lines 17-18), chip capacitor mounted around the pixel portion (i.e., chip capacitor on a substrate of a display device, see APA page 4, lines 13-18).

Regarding **claims 23-24, 26-28, and 44** these claims have similar limitations as Claims 9-10, 12-14, and 43. Therefore they are interpreted and rejected under APA in view of Nakagawa and further in view of Yamazaki for the reasons set forth in the rejection of Claims 9-10, 12-14, and 43.

Regarding **claim 29**, this claim has similar limitations as Claim 8. Therefore it is interpreted and rejected under APA in view of Nakagawa and further in view of Yamazaki of for the reasons set forth in the rejection of Claim 8. It is noted the APA further discloses in Fig. 3B the display device has a substrate (309) on which a pixel portion (304, see Fig. 3A, Specification page 3, lines 17-18).

Regarding **claims 30-31, 33-35, and 45** these claims have similar limitations as Claims 9-10, 12-14, and 43. Therefore they are interpreted and rejected under APA in view of Nakagawa and further in view of Yamazaki for the reasons set forth in the rejection of Claims 9-10, 12-14, and 43.

Regarding **claim 46**, this claim has similar limitations as Claim 8. Therefore it is interpreted and rejected under APA in view of Nakagawa and further in view of Yamazaki of for the reasons set forth in the rejection of Claim 8. It is noted the APA further discloses in chip capacitor on a substrate of a display device (see APA, page 4, lines 13-18).

Regarding **claims 47-49, and 51-53** these claims have similar limitations as Claims 9-10, 12-14, and 43. Therefore they are interpreted and rejected under APA in view of Nakagawa and further in view of Yamazaki for the reasons set forth in the rejection of Claims 9-10, 12-14, and 43.

Regarding **claim 54**, this claim has similar limitations as Claim 8. Therefore it is interpreted and rejected under APA in view of Nakagawa and further in view of Yamazaki of for the reasons set forth in the rejection of Claim 8. It is noted the APA further discloses the flexible circuit board (308, Fig. 3A, 3B, see APA) is mounted on printed circuit board (311, Figs. 3A, 3B, see APA).

Regarding **claims 55-57, and 59-61** these claims have similar limitations as Claims 9-10, 12-14, and 43. Therefore they are interpreted and rejected under APA in view of Nakagawa and further in view of Yamazaki for the reasons set forth in the rejection of Claims 9-10, 12-14, and 43.

Regarding **claim 62**, this claim has similar limitations as Claim 8. Therefore it is interpreted and rejected under APA in view of Nakagawa and further in view of Yamazaki of for the reasons set forth in the rejection of Claim 8. It is noted the APA further discloses in Fig. 3B the display device has a substrate (309) on which a pixel portion (304, see Fig. 3A, Specification page 3, lines 17-18); and the flexible circuit board (308, Fig. 3A, 3B, see APA) is mounted on printed circuit board (311, Figs. 3A, 3B, see APA).

Regarding **claims 63-65, and 67-69** these claims have similar limitations as Claims 9-10, 12-14, and 43. Therefore they are interpreted and rejected under APA in view of Nakagawa and further in view of Yamazaki for the reasons set forth in the rejection of Claims 9-10, 12-14, and 43.

***Allowable Subject Matter***

3. **Claims 11, 25, 32, 50, 58, 66** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

4. Applicants' arguments with respect to claims 8-14 and 22-35 have been considered but are moot in view of the new grounds of rejection. Regarding Applicants' arguments that APA does not teach a chip capacitor, it is noted that APA teaches a chip capacitor in page 4, lines 9-13. Regarding Applicants' arguments that Nakagawa is not in the field of Applicant's endeavor, it is further noted that Nakagawa and APA are applications of semiconductor.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CON P. TRAN whose telephone number is (571)272-7532. The examiner can normally be reached on M - F (08:30 AM - 05:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor VIVIAN C. CHIN can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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November 13, 2009

/Vivian Chin/

Supervisory Patent Examiner, Art Unit 2614